

Developing technology to enhance learning interpersonal skills in counsellor education

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Abstract

The integration of new technologies into counsellor education has progressed slowly. We present *mPath*; an online system designed to support iterative, multi-levelled and deep reflection on practice in skills training sessions. We propose the integration of new technologies to counsellor education as an area with scope for future research and development.

Keywords: Counsellor, education, skills training, technology

Introduction

We content that a fundamental feature of counsellor training is to become proficient in the development of the interpersonal therapeutic relationship. In the training setting this requires a focus on the development of interpersonal skills as a basic competency at both Masters and Doctoral level training. We are interested in the use of new technologies to support skill development in this area.

Existing pedagogies for learning interpersonal relationship skills include a range of approaches such as modelling, watching films of experts, engaging in peer-to-peer practice skills sessions, or supervision of actual practice (see Hill & Lent, 2006 for a recent review). However, in comparison to the proliferation in technology mediated psychotherapies (Mattila, Lappalainen, Välikkynen, Sairanen, Lappalainen, et al., 2016), the integration of technology to pedagogy and preparing students for face to face work is relatively under-researched and has progressed at a comparatively slow pace (Rousmaniere, 2014). Whilst research has investigated how the integration of new technology can be mobilized to enhance learning helping skills, much of this has focused on supporting the (often remote) supervision process (Wolfe, 2011). This contrasts to developing interpersonal relationship skills during the initial phases of counsellor education when the tutor is likely to be more involved in the process. Therefore a significant gap remains in the literature on how to use new technology in this early stage of training.

To address the technology gap the aim in this paper is two-fold: First, to provide a brief overview of the literature on existing approaches to learning interpersonal relationship skills. This brief overview highlights how the technological shift and (increasingly) ubiquitous access to new technologies can be utilized to enhance the acquisition of effective interpersonal helping skills. Second, to demonstrate the potential of new technologies by outlining the development and design process of *mPath*; a new online system and software tool designed to support students' iterative, multi levelled and deep reflection on their practice skills. We consider how such technology-enhanced training could benefit not only students' learning, but also define a program of future

research to understand available, effective and efficient technologies to advance learning interpersonal skills.

Learning Interpersonal Skills

The central importance of the therapeutic relationship, as established by Rogers (1942), is based on core interpersonal skills that can also be considered as a set of *basic attitudes* (Rogers, 1951) that are honed rather than taught. Three of the six conditions (Rogers, 1957) for constructive personality change refer directly to the attitudes of the counsellor and are now ubiquitous across the range approaches to counselling. The interpersonal relationship conditions are genuineness, empathic understanding and unconditional acceptance for the client (Rogers, 1957). If as it is claimed the necessary attitudes of an effective counsellor can be honed through training, how can technology assist or even enhance the learning process?

Training in helping skills frequently includes using one or more of the following models, Human Relations Training (HRT) (Carkhuff, 1972), Micro-Counselling (MC) (Ivey, 1971), and Interpersonal Process Recall (IPR) (Kagan, 1984). HRT (Carkhuff, 1972) involves skills practice with rotation through the roles of therapist-client-observer. MC (Ivey, 1971) involves role-play sessions that focus on specific skills, with tutors giving guidance and constructive feedback. IPR (Kagan, 1984) is used to review recordings of either practice sessions with peers, or with real clients, to deepen students' understanding of specific moments of the interaction process. A rare more recent development, an integrative approach, is the Helping Skills Model (Hill, 2004) that includes various aspects from HRT, MC and IPR.

The primary pedagogical theory underpinning learning interpersonal helping skills is experiential learning (Kolb, 1984). Experiential learning relies on two major psychological processes being activated. The first of these relates to the differences between declarative and procedural memory systems (Squire, Knowlton, & Musen, 1993). The second is related to cognitive adaption in situations involving intense emotional expression or disclosure of significant events. Such cognitive

adaption reduces the availability of information stored in declarative memory and can disrupt effective communication to the client. Such cognitive adaption might increase the use of procedural knowledge as people defer to well-rehearsed actions in the absence of other information. Embedded procedural knowledge enables access to the necessary capacities required when faced with the intense pressure in an emotionally charged relational atmosphere such as counselling.

Reflection on experience and opportunities for conceptualizing abstract aspects of events are also important features of experiential learning. Theoretically, reflection can lead to developments in cognitive schema (Eyler, 2002). This is achieved by developing self-awareness and becoming more able to act on this awareness and make changes to behavior. From this, it follows that reflection on counseling skills sessions in training is vital for creating the deep learning experiences that will lead to the attitudinal changes and enhance practical skill development.

Experiential learning can be integrated with direct instruction, modelling, and feedback that might use didactic methods, modelling of technique behaviour, using audio recordings, or perhaps make use of a counsellor-actor within a film or television series; although in one study the use of an actor from a television series was considered the least preferable by students (Jackson et al., 2014). Each of these pedagogical methods, and particularly skills practice sessions, relies almost entirely on ‘in-person’ contact and is relatively low-tech with heavy staffing and therefore with higher cost implications.

Technology Support in Experiential Learning

In the field of education for counsellors and mental health workers more generally there has been recent growth of research in technology-supported supervision (cf., Barnett, 2011; Rousmaniere, 2014 for reviews). As far back as the mid-1940s Carl Rogers was recording counselling sessions for educational purposes (Kirschenbaum, 2007). Video playback for clients was proposed as a potential technological breakthrough (Hogan, 1967) in conjoint marital psychotherapy to reduce resistance and defensiveness and enable change. Learning from films, dissecting the process, and gaining a

deeper understanding of process in counselling can be a rich learning experience (Hill, Stahl, & Roffman, 2007) where 'Trainees learn to use skills more successfully from observing videotapes and transcribing and coding helping sessions at various points in time and reflecting on their experiences than from just instruction, modelling, practice, and feedback' (p. 368).

Video playback of counselling skills sessions have been used extensively to help train in specific techniques in humanistic therapy (Berdondini, Grieve, & Kaveh, 2014) and group therapy (Ohrt, Ener, Porter, & Young, 2014). However, whilst detailed scrutiny of counselling practice is available through the use of video technology, existing helping skills training is shaped by technology limitations such as the difficulty of navigating within a video (linear viewing), the inability to 'annotate' or mark the video while reviewing sessions to support subsequent reflection, and the need to be physically present and co-located with others if the video is to be worked on in small groups. A number of authors (Rousmaniere, 2014; Wolfe, 2011) have pointed to the possibilities emerging due to the increasing power of computers and hand-held devices together with the connectivity made available by Internet. These include not only the possibility for improved cost-effectiveness of an ever-increasingly expensive training, improved accessibility, but also the possibility to augment and change existing approaches to training. Two examples include learning helping skills using a protocol for conducting supervision by reviewing video recordings of sessions, freely available on the Internet (Abbass, Arthey, Elliott, Fedak, Nowowieski, Markoski, & Phillips, 2011) and reviewing video footage of expert therapy interactions online (McCullough, Bhatia, Ulvenes, Berggraf, & Osborn, 2011). The first approach provides step by step instructions on how to set up a supervision review sessions so that both supervisor and supervisee can view the recording of a counselling session simultaneously. Text messaging whilst watching the video is proposed in order to add a form of micro-commentary by the supervisor on individual interventions by the trainee counsellor. The trainee is then able to respond in-session or has the option to save the messages for review at a later point in time. A benefit of this method is that the trainee counsellor and supervisor engage in

reflective discussions on the trainees' practice which is then deepened by the micro-commentary. However, a limitation to this system is that the micro-commentary gets stored in a separate location to the film itself. That is, the film still does not become annotated or 'marked-up' with any commentary. The trainee still needs to go back and synch the film with the micro-commentary to re-engage in the reflective process at a later stage. Moreover, as this has been used in supervision it suggests the system is designed for when the trainee is already in practice beyond the very introductory stage of training. Arguably this system might be considered more appropriate for more advanced students and offers little to the novice trainee. However, these researchers make no mention of the potential use of this a system for novice students and no research has yet been conducted to assess the application of the method within initial helping skills training setting.

The second approach (McCullough, et al., 2011) is a software system that contains ratings by experts of selected 'master' therapy sessions. The core feature rests on allowing students to watch and rate videos and make comparisons between their own ratings and those of experts saved within the system. Not only does the system enable students to observe expert practitioners model different approaches, it supports the development of specific skills by identifying examples of good practice, of client process, and of client changes taking place. Video used in this way might also enhance competence by deepening students' awareness of the counselling process as it is known through the evaluation of good cases. However, while effective, the system still does not take full advantage of technology opportunities available – although the authors highlight the value of micro-analysis and picking up on, and working with individual moments within counselling, the interaction with the system is limited to submitting the ratings (4-6 numerical values on scales 1-100 and a 'main affect') to pre-selected, 10-minutes long fragments of the sessions. A further downside is that students may try to copy the expert practitioners and fail to develop their own personal style as a counsellor. Likewise, this approach does not create the intense emotional experiences discussed above that can lead to procedural knowledge becoming automated under intense therapeutic conditions.

On the basis of this overview the following conclusions are drawn. A range of approaches exist that support learning helping skills in counsellor education. Video playback technology is increasingly used in a range of formats: including skill development using pre-recorded experts or novices and experienced trainees in analogue sessions; for supervision purposes once working with ‘real’ clients, and for training in specific techniques and deepening skills in analyzing therapeutic process. Moreover, emerging literature on supervision strongly suggests that integrating video playback technology with Internet connectivity can extend possible uses. However, there is a lack of training-support software systems that can integrate existing knowledge of skills training that rely on experiential learning theories, and incorporate technology solutions for Internet and web based video conferencing, with added features to enhance reflection and analysis of skills sessions. This is the task we addressed and the process-outcome of that task is detailed below.

Method

Developing the software (author blinded for review), our aim was to address the gap in the use of technology for skills training in a professional counsellor education context. A software system was built based on our research with students and tutors of a psychotherapy program at a leading university in the United Kingdom over a period of 2 years. Through the process we drew on user-centered methodology (Rogers, Sharp, & Preece, 2011) as an established approach to developing knowledge about the underlying needs and challenges of the students, and designing an interactive system to address these needs. To this end, we conducted a series of interviews and observed practice skills sessions. Interviews were semi-structured and allowed participants to maximum opportunity to describe their existing skills based learning procedures and experiences. That is, we looked at several areas within interviews: what the students current practice involved, how tutors supported helping skills development, and discussed possible matching of these to technology solutions. The research process included the creation of low-fidelity technology prototypes (e.g., mock-ups of envisioned systems from simple materials such as paper printouts)

which were employed to illustrate technology possibilities, deepen discussions with participants and enhance both their and our understanding of opportunities for technology design in the counselling training setting. <Insert Table 1 approximately here>

Participants

Initially we conducted interviews with 3 teaching staff, 4 expert counsellors and 19 Masters level counselling students that took part in the various research activities. Altogether 22 females and 4 males participated. The sample reflects the ratio of females to males in the counsellor training programs. Generally, each participant took part in a single Phase only; with the exception of three students participating in two Phases each (S4, S11, S13[S = student participant]). Participants were mainly psychology graduate students studying a post-graduate degree in counselling based on a theoretical orientation described as a person-centered experiential approach.

All student participants had at least one year of helping skills training and had previously been developing their skills through a range of methods including, tutor modelling, small group peer-to-peer skills session with tutor feedback, and video play back of peer-to-peer skills sessions using an adapted version of IPR. Students typically worked in groups of five or six people and rotated through the various roles. Groups were supported by experienced tutors. Students had also watched videos of master therapists at work (e.g. Rogers, Perls and Ellis working with 'Gloria'; Cain, Greenberg and Pavio from the American Psychological Association Master therapy series).

Procedure

The first two phases of the development process explored how students experience their skills training with a particular focus on what they found difficult. This explored how digital technology could be better used to support their learning process. Through the first phase, we identified that process work involving reflection on skills practice sessions was considered both integral and crucial to learning; providing students with opportunities for 'deliberate practice', putting theory into practice, and the development of their self-awareness and reflective capacities. Clarifying the

underlying difficulties faced by students led to first ideas for a potential technology design which centered on the development of an online tool to provide students with a wide range of opportunities to reflect, annotate, and receive peer feedback as part of the process work.

The subsequent two phases focused on iterative development of the system that would (a) build on but also conceptually extend the current pedagogical practices; (b) be designed with the 'student in mind' to support their work rather than hinder it. We took advantage of established methodologies in software development (Buxton, 2010) to progress from initial low-fidelity prototypes (exploring the design space), to digital prototypes used in the Wizard of Oz scenario (researchers doing some of the work behind the scenes to test computationally difficult aspects before these need to be fully implemented), and finally to a fully developed software package.

The research team was multi-disciplinary, comprising a psychologist and counsellor educator, interaction designer, and computer scientists. This diverse mix of research expertise provided a rich resource of theory, creative and practical skills and knowledge from which to draw on during the research process.

Results

Based on the findings from participant interviews we identified four challenges to address in further development work of the mPath software system. In this section we present these challenges and state how they can be addressed in the design of the *mPath* system. The challenges identified were:

- promoting counselling students' self-directed process-reflection work;
- improving access to client's experiences as part of counsellor skills process-reflection work;
- supporting detailed, constructive feedback from peers in the process-reflection work;
- facilitating iterative, multi-phase process-reflection work over time.

Student Self-directed Process-Reflection work

Helping skills training can be conducted by tutors giving instruction for specific skill development as the focus of a practice session. This might refer to a specific competency in a particular model (e.g. developing empathic understanding, or emotion specificity in person-centred experiential counselling; or the task of graded exposure in behavior therapy). However, students can also benefit from developing capacities for self-directed reflection as a skill for future practice. Students need to be able to identify important inter- and intra-personal processes that shape and guide their in-the-moment responses to clients. Research suggested that therapists are capable of identifying significant helpful or hindering aspects of therapy (Llewelyn, 1988) and skills sessions provide an opportunity to learn from such significant aspects of practice sessions. However, existing approaches to skills training offer only a limited platform for learning self-directed process-reflection and it is possible using the IPR prompt sheet distracts students away from the most personally significant issues as they are directed by an ‘inquirer’.

At the end of skills sessions students will often be left with unanswered questions that would benefit from an extended self-directed process-reflection. Practicing reflection on self and one’s cognitive processing can develop capacity for metacognition (thinking about thoughts) (Breed, 2013). A risk to fulfilling learning potential is that important thoughts, comments and feedback are not accessed in standard IPR sessions. Being able to ‘attach’ reflections to specific moments of a video session could resolve this as could students being able to shape the timing of process-reflection. Research also suggests that accessing the memories from deep emotional experiences can take time and are not as readily available as more cognitive aspects of memories (Larsen, Flesaker, & Stege, 2008). This is based on earlier work that identified accessing emotional inner processing requires a cycle going back and forth between checking inner states and verbalizing these states (Greenberg, Rice, & Elliott, 1993). Further to this it is argued that slowing down the reflective process can optimize this cycle and lead to enhanced processing and verbalizing of complex internal

experience (Larsen, Flesaker, & Stege, 2008). The data generated through process-reflection and feedback is important for the development of felt experiences to be made tangible and accessible for future practice. Thus, a system is required to help extend opportunities for students to identify important inter- and intra-personal reflection processes. Additionally, a further system requirement is to provide functionality that allows for a synchronized documentation of comments and feedback to be attached to recordings of their behaviors as well as offering flexibility to revisit a session as-and-when the students are emotionally ready to engage with it.

Accessing clients' experiences to support process-reflection work

We identified the need for the student in the role of the counsellor to have better access to their clients' experiences (thoughts, feelings, reactions etc.) of the helping skills sessions and those during the reflection process. In particular, it was noted there was often little direct interaction between the client and student counsellor after the skills practice session. Research points to the significant benefits to clients when they receive feedback on their in-session progress (Lambert, & Shimokawa, 2011). Gains in training counsellors could also be made by enabling feedback directly from peer-client to their student counsellor. It would be valuable learning to give student counsellors more direct access to feedback for verifying and sense-checking the intricate assumptions they made about their client's feelings, thoughts or behaviors as part of their post-session process-reflection work. Additionally, counsellors in real settings tend to be poor predictors of the quality of the helping relationship whereas clients offer a more reliable evaluation (author, blinded for review). Enabling peer-clients to offer invited feedback and contribute to students' reflections on skills sessions provides a valuable source of feedback. In addition, getting a different perspective on one's own subjective experience can be informative and assist in making changes in self-understanding and self-development. In the person-centred experiential approach psychotherapist effectiveness is thought to be related to self-awareness and self-acceptance (Murphy & Joseph, 2016). Client feedback could help the student counsellor become more aware and ultimately self-accepting of

issues directly affecting their interpersonal helping skills. The challenge is to develop new technology to enable the provision of feedback?

Supporting peer feedback

Extending constructive feedback from clients through the role of an observer within the frame of a helping skills session is an important yet difficult skill to accomplish. In particular, students find it difficult to be concrete in giving feedback often failing to link comments to specific observations or in-session events. As stated above the use of feedback for developing better outcomes in psychotherapy is well documented (Lambert & Shimokawa, 2011). The challenge is to generate a system for feedback to helpfully tie the reflective process to significant events in the skills session. The goal of doing so is to support the development of the procedural knowledge associated with helping skills whilst adding to the declarative knowledge associated with theory, all of this being facilitated via a technology assisted environment. A system that can enable feedback from one or multiple peers to be supplied following a skills session that flags areas for closer attention and reflection will serve to enhance the quality of feedback whilst ensuring this is tied to key moments in the skills sessions.

Facilitate iterative, multi-phase process-reflection

A commitment to process-reflection work is a career-long responsibility for counsellors. As clients continue to reflect on themselves between sessions student counsellors can also reflect on their skills development between sessions; these reflections might combine periods of deep individual sense-making and reflection (including creating assumptions about others' experiences and states), with periods of interactions where such thoughts and sensations are shared, checked, and discussed (e.g., in peer skills groups or supervision). A lack of technology in most current skills learning environments means such learning can be lost if only limited or sometimes no records are made of process-reflection and discussions. Students can struggle to maintain reflective journals based on practice sessions. Students could benefit from being able to continue to flag important

events, rate aspects of practice, evaluate, and analyze their practice over time. After the session, few opportunities exist that enable the development of a deeper understanding of practice, the motivations for key in-session responses and the personal dimensions influencing decisions. Likewise, for uncovering relational and interpersonal dynamics between client and counsellor not immediately present in the reflection session. Revisiting skills sessions over a period of several days, being able to dialogue with peers, and gain support for further reflection is difficult using traditional approaches to helping skills practice.

Description of the mPath Software

Based on these identified challenges we will now present a particular use-case to illustrate the technology opportunities for enhancing process-reflection and learning helping skills. An online software system was developed— *mPath* —to be used by counselling students as part of their training. *mPath* is organized around individual video recorded practice skills sessions that students can upload to the system. The system works by the student in the role of the counsellor uploading a video-recording of a peer skills session, which is possible only with the consent of their 'client'. *mPath* allows the student to work with the session from any place through using any computer with a modern Internet browser. All students are briefed on issues of confidentiality and of treating the session as a client record. Students that are clients for the sessions also give their informed consent for the sessions to be uploaded to the *mPath* system.

To help focus and structure the process-reflection work over time *mPath* is designed to nudge students to explicitly select one of the following three perspectives: focusing on the *counsellor* (i.e., emphasis on own behaviors, thoughts, feelings, and process experiencing); focusing on *the client* (attempting to understand client's in-the-moment behaviors, thoughts, feelings, and process experiencing and also the client's reactions to the student counsellor); and focusing on *the interaction* (looking at the inter-personal dynamics of the session).

Within each perspective, *mPath* offers multiple tools to assist in process-reflection: the ability to mark and annotate any moment within the session with a text comment; to focus on non-verbal interaction only by working within a silent mode of the video; to create 'AffectSlider' traces to generate visual representations of ratings of perceived experiences within the session; as well as request any of these as feedback from the client. These experiences can be focused on exploring attempts at practicing key skills or techniques.

Students' reflection work with each tool is saved as a specific 'track' in the system, synchronized with the underlying session video, and can be reviewed individually. Alternatively, the student can simply click and select a number of tracks for the same skills session that have already been created and review them in combination. This supports the students to focus on specific aspects of the session in detail while creating multiple reflection tracks; but also offering the option to combine the resulting annotations together in an overarching picture that supports a more holistic understanding and reflection on the session. Additionally, the student can request feedback or rating on a key variable, such as 'level of empathic engagement' or 'level of congruence', or for specific technique application such as 'facilitating emotion specificity'. This can be for during a given moment, defined period, or across a full session; the counsellor can request feedback from the client, observers or tutors on these parts of the session. In what follows, we describe each of these tools in more detail.

Annotation tools

The annotation tool allows the student to place marks that are tied to the underlying video. The marks take two forms: simple 'flags' that mark a specific moment that is of importance for the student, but carries no textual information; and 'comments' that allow the student to add a more detailed description of their reflection. To add a flag to the video the student can either press the mouse button when watching the video that automatically creates a flag on the track they are currently annotating, or they can press the space button on the keyboard, which pauses the video and allows the student to write down and save a comment in the text box that appears underneath the

video, linking their annotations to this particular moment in the video. This mimics the practice of students entering notes into a text document, or a physical notepad that are timestamped to be linked with the session video. What technology adds is a substantial enhancement of these practices by allowing quick and simple annotation (see Figure 1) that can be tied to the specific moments in the session. Moreover, the ease of navigating the video to the moment (i.e. a seamless moving forward and backward in the time line via drag-and-drop, or functionality to zoom-in and –out of the entire video track aiding identification of those parts in the video that were annotated) has the potential to support iterative, in-depth analysis by the student where they are able to track and reflect on different parts of the session more easily. <Insert Figure 1 here>

Non-verbal (body) focus

The 'Body focus' functionality allows the students to annotate the session with the audio of the recording deliberately being disabled, whilst providing the full annotation tools functionality as described above. This is intended to support students to focus on the nonverbal aspects of the session as another important aspect of the skills session that can be analyzed in greater detail.

AffectSlider

AffectSlider exemplifies one of the key novel features provided through technology, allowing the students to capture their subjective rating of experiences 'in-the-moment' (while watching the video), and then automatically transform it into an overview of the whole session. The current version of the AffectSlider takes the form of a virtual 'slider' on a single line with two poles, where poles can represent any concept that students wish to explore, e.g., from low-empathic understanding to high-empathic understanding (see Fig. 2). <Insert Figure 2 here>

The student can indicate their in-the-moment experience while they watch a video-recording of their session, adjusting the slider position by moving their PC mouse. The sequence of such slider position changes is automatically recorded and time-stamped to tie the changes to the respective time in the video, and can be thus later presented as an overview graph.

Discussion

Following presenting *mPath*, we are now better placed to consider a wider range of ways that technology support can be utilized to enhance counsellor skills development. We identify two major areas where this might be possible. First is the development of a web based video technology system that facilitates a shift in the approach and style of reflection on skills practices. Second is enabling reflection processes to be developed from a range of perspectives on either the full length or segment of a skills practice session. This is achieved through the use of web based technologies and software developments to incorporate high quality self, peer and tutor feedback to assist and support process-reflection of sessions over time.

Potential Changes to Process-Reflection Practices

One of the major benefits that using technology support can offer to skills training is its potential to change the way that students reflect on their practice when learning. Reflection upon skills practice sessions will often be relatively brief, with (usually but not always) feedback from observing peers, and include some tutor feedback. The use of technology can radically change this, possibly extending and deepening the time allowed for the process-reflection through the accessibility to the film and further online feedback. In particular, the ease with which technology can support annotation of specific moments within the video as well as easy restructuring of the comments can enable a ‘layering’ of reflection, where students re-visit and re-evaluate their annotations over time. Moreover, the spatial representation of the comments and ability to quickly compare annotations made in multiple views, enables a novel form of representing and analyzing the session as ‘out-in-the-world’; as opposed to simply as a video-recording accompanied by hand-written notes from a discussion amongst peers or one’s own process work. In particular, such spatial representation can enable students to change from a linear temporal mode of reflection to a circular or spiral mode: repeatedly working with specific moments, adding layers of reflection, and pulling together multiple views to facilitate deeper understanding. All data is stored online using secure servers that offer

protection through encryption. Access to videos is limited by issuing individual user accounts to students using the system. The system is accessible on public or private network and it is recommended for use only on password protected internet connections using encryption.

Technology can also offer a completely new perspective and tools for reflection. As an example, the technology behind the AffectSlider allows the student to freely move in between indicating the ‘in-the-moment’ feelings relevant to the selected concept; and the resulting ‘overview trace’ that is automatically generated; This would be pragmatically impossible on paper. In particular, visualization of the resulting trace once it has been indicated can help identify key moments of interest (e.g., a drop in perceived empathic understanding), as it is again tied to the video-recording, starting the next layer of reflection. Moreover, the in-the-moment use of AffectSlider promotes sustained attention, as the slider position is to be continuously changed according to perceived experience or behavior; and the students’ choice of a specific variable of practice to analyze can reduce the cognitive overload and helps the student make conscious decisions about which aspects of their skills they want or need to specifically focus on.

Further to this it is possible for students to download and export their process notes, comments and AffectSlider data as a pdf or to print their annotation logs for further analysis. This facility can support students in homework and assignment tasks that require the analysis of practice sessions.

Multiple Perspectives for Reflection

The second major potential contribution of technology for skills training is the development of multiple perspective reflection on video recorded skills sessions that involve the client-students or supervisors in the extended post-session process-reflection in a pragmatically viable way. As the technology-based systems can run online, the student can select specific parts of a session—for example a specific sequence or time period—and send them to the client or supervisor with a request for feedback. Such time-limited feedback requests (i.e. a shorter 2-3 minute sequence of the video), which can be sent using email notification and answered asynchronously, provide a pragmatic

opportunity for the student to receive information from the client, which would be otherwise likely unavailable. We suggest that facilitating such time-effective, asynchronous interaction between students can enhance post-session reflection by not only being much more viable to scale, but also likely to promote repeated and iterated reflection where the student can go ‘deeper’ with each round.

Technology-based systems can also directly promote students' perspective taking and help explore the differences in experiences of a given session between client, student and observers/tutors. Taking again the AffectSlider as an example, students can be invited to indicate not only their own experience, but their assumptions about how the client feels. If the client is then asked to do a similar AffectSlider, the student's perception can be cross referenced with the client's own views by matching the resulting two traces. Moreover, once such tracks are created, it can easily be presented to a tutor for comments, or compared with the observers' views of the same segment. Significant mismatches or high levels of concordance between the client's, student counsellor's or tutor's assessments might trigger further discussions and exploration of the moments in question. This makes for time efficiency, especially when compared to IPR or similar procedures, and could again allow for iterative engagements in a relatively low time requirement that is entirely self-directed.

Transferability of Concepts

mPath builds on a core practice that is mostly common across counsellor education, i.e., students analyzing their own sessions as a core method to developing helping skills. While *mPath* is currently designed and being developed to fit the person-centred experiential approach, the underlying concepts guiding its design—all building on the need for support to visualize and make sense of experiences within the complexity of counselling sessions—are likely to be of value for many other approaches. In this sense, research around *mPath* is not only pointing to a specific tool that might be of use, but also highlighting how novel technology could help counsellors across all schools enhancing training practices and supporting effectiveness.

Future Work

mPath is already being deployed in real-world teaching scenarios and is now being used within selected UK based counsellor education programs. We are also researching how mPath affects process-reflection work following skills practice sessions for both the students and tutors and we anticipate this will lead to changes to pedagogical processes. In doing so, we want particularly to explore the following aspects: What will be the immediate outcomes concerning the perceived usefulness for students and staff members as well as the opportunities mPath offers to extending and enhancing the existing training process-reflection work. We are interested in how mPath enhances the teaching of skills. We will focus on understanding how mPath can affect and enhance the students' experiences with process-reflection work. One expectation is that we will see a 'deeper' level of process-reflection work as well as improved understanding of client's experiencing through the use of the mPath system. A more distal but crucial aspect is trying to identify the outcomes of technology on students' skills development, including aspects such as differences in rating expert bona fide sessions pre-/post- mPath training, especially in comparison with a matched control group.

Conclusion

Technology solutions for enhancing counsellor training are a neglected area of research and development in the field. Counselling has a long tradition of embracing new technologies and yet there seems to be little by way of technological advances in counsellor education. The *mPath* system presented here is an example of what is possible by integrating and developing new technology to support for counsellor education. We call for further research and development in this area to enable our understanding of how students learn to be as effective as possible.

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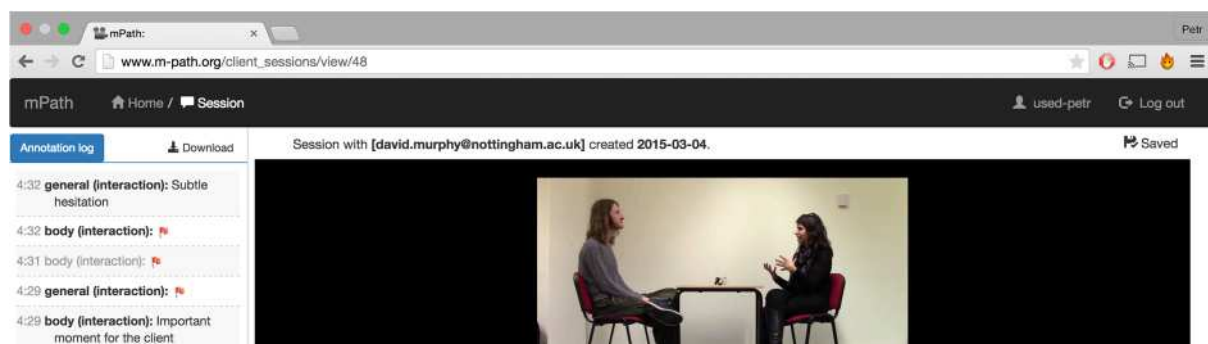


Figure 1. Annotation system



Figure 2. AffectSlider interface

| UNDERSTANDING THE LEARNING PROCESSES | Research Phase | Methods | Participants and activities | Length Demographics | Participants' IDs |
|--|----------------|---|---|--|----------------------------|
| | Phase 1 | Semi-structured interview | Participants: 5 counselling students Activities: <ul style="list-style-type: none"> Discussed the main issues students encounter as part of learning Identified areas to explore in next stages -- practice counselling sessions, and facilitating feedback Aims: Design inspiration; understand the basics of the learning process and the key challenges | 4 females 1 male Length 45 min | S1-S5 |
| | Phase 2 | Observation | Participants: 4 expert counsellors, 8 counselling students Activities: <ul style="list-style-type: none"> Observed practice counselling sessions led by expert counsellor Observed (and recorded) reflection practices of both student client and expert therapist after the session Aims: Design inspiration; understand the practice counselling sessions, and students' reflective abilities | 10 females 2 males Length 60 min | E1-E4 S4, S6 - S12 |
| | Phase 3 | Semi-structured interview Design prompts | Participants: 3 members of staff, 3 counselling students Activities: <ul style="list-style-type: none"> Discussed how learning is scaffolded in class, particularly around practice counselling sessions Followed by design prompts to envision potential of novel sensing and feedback support technologies Aims: Refine design considerations. | 5 females 1 male Length 60 min | T1-T3 S11, S13 - S14 |
| Development of the design prompt for Phase 4 | | | | | |
| DESIGN EXPLORATION | Phase 4 part 1 | Practice counselling session Semi-structured interview | Participants: 6 students (3 pairs), each participating in both parts Activities: <ul style="list-style-type: none"> Practice counselling sessions -- each student took part once as the client and once as the counsellor. | 5 females 1 male Length 90 + 90 min | S13, S15 - S19 |
| | Phase 4 part 2 | Wizard of Oz Semi-structured interview | <ul style="list-style-type: none"> Observe and explore students' reflection practices on recorded counselling session. Review and critique of the design concept presented through WoZ Aims: Confirm identified challenges and design confiderations | | |

Table 1. Outline of the iterative approach (methods and activities for each phase)